

CLAIMS

We claim:

1. Apparatus comprising:

an automated banking machine including a first paper moving device, a second paper
5 moving device, a paper testing arrangement, and a currency dispenser operative to
dispense currency,

wherein the paper testing arrangement is operative to test the ability of paper in the
automated banking machine to be moved by the first paper moving device responsive to
both operation of the second paper moving device to move the paper and non operation of
10 the second paper moving device,

wherein the automated banking machine is operative to generate at least one fault signal
responsive to at least one of

the inability of the paper to be moved by the first paper moving device despite
operation of the second paper moving device, and

the ability of the paper to be moved by the first paper moving device despite non operation of the second paper moving device.

2. The apparatus according to claim 1 wherein the at least one fault signal responsive to the inability of the paper to be moved by the first paper moving device despite operation of the second paper moving device includes a fault signal type representative of a paper jam.
3. The apparatus according to claim 1 wherein the at least one fault signal responsive to the ability of the paper to be moved by the first paper moving device despite non operation of the second paper moving device includes a fault signal type representative of a paper break.
4. The apparatus according to claim 1 wherein the automated banking machine is operative to generate at least one fault signal responsive to both the inability of the paper to be moved by the first paper moving device despite operation of the second paper moving device and the ability of the paper to be moved by the first paper moving device despite non operation of the second paper moving device.
5. The apparatus according to claim 1 further comprising a paper take-up roll, wherein the take-up roll is adapted to rotate to take up printed paper, wherein the first paper moving device comprises a take-up roll drive adapted to rotate the take-up roll.

6. The apparatus according to claim 1 further comprising a printer, wherein the printer is adapted to move paper therethrough and print thereon, wherein the second paper moving device comprises a printer drive adapted to move paper relative to the printer.

7. The apparatus according to claim 6 further comprising a paper take-up roll and a coordinator, wherein the coordinator is adapted to cause the printer to move paper and cause the take-up roll to take up moved paper.

8. The apparatus according to claim 6 wherein the printer comprises a journal printer, wherein the second paper moving device comprises a journal printer drive.

9. The apparatus according to claim 8 further comprising

10 a paper take-up roll, wherein the take-up roll is adapted to rotate to take up printed paper, wherein the first paper moving device comprises a take-up roll drive adapted to rotate the take-up roll,

a sensor, wherein the sensor is operative to sense movement of the take-up roll,

at least one computer in operative connection with the sensor,

wherein the at least one computer is adapted to coordinate operation of the journal printer drive and the take-up roll drive,

wherein the at least one computer is operative responsive to the sensor to determine whether the take-up roll has failed to take up moved paper,

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wherein the at least one computer is operative to generate the at least one fault signal responsive to a determination that the take-up roll has failed to take up moved paper.

10. The apparatus according to claim 9 wherein the at least one computer is adapted to simultaneously operate the journal printer drive and the take-up roll drive.

10 11. The apparatus according to claim 1 wherein the automated banking machine includes at least one input device, wherein the least one input device is operative to receive at least one input from users of the automated banking machine.

12. The apparatus according to claim 11 wherein the least one input device is operative to receive at least one input from customers using the automated banking machine.

15 13. The apparatus according to claim 11 wherein the least one input device is operative to receive at least one input from servicers of the automated banking machine.

14. The apparatus according to claim 9 wherein the automated banking machine is operative to communicate with a service center remotely located from the automated banking machine, wherein the at least one computer is operative to submit a service signal to the service center responsive to the generation of the at least one fault signal.

5 15. The apparatus according to claim 12 wherein the automated banking machine further comprises at least one output device,

wherein the least one input device is operative to receive at least one input including a customer request,

10 wherein the automated banking machine is operative to determine whether the request requires movement of the paper,

wherein responsive to determining that the request requires movement of the paper, the automated banking machine is operative to test the ability of the paper to be moved by the paper testing arrangement,

15 wherein responsive to the generation of the at least one fault signal the automated banking machine is operative to provide an output

from the automated banking machine through the at least one
output device reflective that the request cannot be accomplished.

16. The apparatus according to claim 15 wherein the least one input device includes a card
reader operative to receive a card, and wherein responsive to generation of the at least one
5 fault signal the automated banking machine is operative to output the card from the card
reader.

17. The apparatus according to claim 15 wherein the output device includes a display screen,
and wherein responsive to generation of the at least one fault signal the automated
banking machine is operative to output a message on the display screen.

10 18. The apparatus according to claim 12

wherein the least one input device is operative to receive at least one input including a
customer request,

wherein the automated banking machine is operative to determine whether the
request requires movement of the paper,

15 wherein responsive to a negative determination, the automated banking
machine is operative to carry out the request.

19. The apparatus according to claim 18 wherein responsive to a negative determination, the automated banking machine is operative to carry out the request despite generation of the at least one fault signal.
- 5 20. The apparatus according to claim 12 wherein the automated banking machine is operative responsive to receiving the at least one input to attempt to perform at least one customer transaction request, wherein the automated banking machine is operative to cause the paper testing arrangement to test the ability of paper to be moved prior to attempting to perform a customer transaction request.
- 10 21. The apparatus according to claim 12 wherein the automated banking machine is operative to automatically cause the paper testing arrangement to test the ability of paper to be moved during non use of the machine by a customer.
22. The apparatus according to claim 21 wherein the automated banking machine is operative to cause the paper testing arrangement to test the ability of paper to be moved intermediate consecutive customer transaction requests.
- 15 23. The apparatus according to claim 12 further comprising a printer, wherein the automated banking machine is operative to receive at least one customer transaction request requiring printing on the paper by the printer, wherein the automated banking machine is

operative responsive to the at least one customer transaction request to cause the paper testing arrangement to test the ability of paper to be moved prior to printing.

24. The apparatus according to claim 12 wherein the automated banking machine is operative to receive at least one customer transaction request requiring operation of the currency dispenser, wherein the automated banking machine is operative responsive to the at least one customer transaction request to cause operation of the currency dispenser to dispense currency.

25. The apparatus according to claim 24 wherein the at least one customer transaction request comprises a cash withdrawal request, wherein the automated banking machine is operative to cause the paper testing arrangement to test the ability of paper to be moved subsequent to receiving the cash withdrawal request but prior to operation of the currency dispenser.

26. The apparatus according to claim 25 further comprising a printer and a paper take-up roll, wherein the printer is adapted to print information corresponding to the cash withdrawal request on paper, wherein the second paper moving device comprises a printer drive adapted to move paper relative to the printer,

wherein the take-up roll is adapted to rotate to take up the paper having the information printed thereon, wherein the first paper moving device comprises a take-up roll drive adapted to rotate the take-up roll.

27. The apparatus according to claim 1 wherein the test is operative to move paper in a first direction, wherein responsive to the paper being moved in a first direction during the test the automated banking machine is operative to cause the paper to be moved in an opposed direction at least a portion of the first distance.
28. The apparatus according to claim 27 wherein the automated banking machine is operative to cause movement of the paper in the opposed direction responsive to non generation of at least one fault signal responsive to the test.
29. The apparatus according to claim 27 wherein the automated banking machine is operative to cause the paper to be moved in the opposed direction a distance generally equal to the distance the paper was moved in the first direction.
30. The apparatus according to claim 1 wherein the paper testing arrangement is operative to move paper in a first direction during the test, wherein the automated banking machine is operative to move the paper in a direction opposite to the first direction responsive to test completion.

31. The apparatus according to claim 1 further comprising a printer and a paper supply roll, wherein the printer is adapted to print on paper supplied from the paper supply roll, wherein the first paper moving device and the second paper moving device are in a paper moving path.

5 32. The apparatus according to claim 31 wherein the first paper moving device is downstream of the second paper moving device, wherein the first paper moving device comprises a printer drive adapted to move paper relative to the printer, and wherein the second paper moving device comprises a paper supply roll device.

10 33. The apparatus according to claim 31 wherein the first paper moving device is upstream of the second paper moving device, wherein the first paper moving device comprises a paper supply roll device, wherein the second paper moving device comprises a printer drive adapted to move paper relative to the printer.

15 34. The apparatus according to claim 31 and further comprising a paper take-up roll in the paper moving path, wherein the take-up roll is adapted to rotate to take up printed paper, wherein the test comprises a first test, wherein in the first test the first paper moving device comprises a paper take-up roll drive adapted to rotate the paper take-up roll,

wherein in the first test the second paper moving device comprises a printer drive adapted to move paper supplied from the paper supply roll relative to the printer,

wherein in the first test the paper testing arrangement is operative to move paper in a first direction, and wherein responsive to first test completion the paper testing arrangement is operative to perform a second test,

wherein in the second test the paper testing arrangement is operative to test the ability of the paper to move in a reverse direction,

wherein in the second test the paper testing arrangement is operative to move paper away from the printer and toward the paper supply roll,

wherein in the second test the first paper moving device comprises the printer drive and the second paper moving device comprises a paper supply roll device.

35. A method comprising:

(a) testing the ability of paper in an automated banking machine to be moved responsive to operation of a first paper moving device coordinating in operation with a second paper moving device to move the paper, wherein the automated banking machine includes a currency dispenser operative to dispense currency,

- (b) testing the ability of the paper to be moved by the first paper moving device despite non operation of the second paper moving device,
- (c) generating at least one fault signal responsive to at least one of the first paper moving device being unable to move the paper in (a) and the first paper moving device being able to move the paper in (b).

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36. The method according to claim 35 wherein (c) includes generating at least one fault signal type representative of a paper jam responsive to the first paper moving device being unable to move the paper in (a).

37. The method according to claim 35 wherein (c) includes generating at least one fault signal type representative of a paper break responsive to the first paper moving device being able to move the paper in (b).

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38. The method according to claim 35 wherein (c) includes generating at least one fault signal responsive to both the first paper moving device being unable to move the paper in (a) and the first paper moving device being able to move the paper in (b).

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39. The method according to claim 35 and further including

(d) carrying out (a) and (b) responsive to receiving at least one input by the automated banking machine from a user.

40. The method according to claim 39 wherein (d) includes receiving at least one input from a customer of the automated banking machine.

5 41. The method according to claim 39 wherein (d) includes receiving at least one input from a servicer of the automated banking machine.

42. The method according to claim 40 wherein the automated banking machine is operative to attempt performing at least one transaction responsive to the at least one input, and wherein (d) includes carrying out (a) and (b) prior to attempting to perform the at least one transaction.

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43. The method according to claim 40 wherein the at least one input includes a customer request, and further including

(e) determining whether the customer request requires movement of the paper, and either

(f) responsive to the request requiring movement of the paper and responsive to the generation of a fault signal in (c), providing an output to the customer reflective that the request cannot be carried out, or

(g) responsive to the request not requiring movement of the paper, operating the machine to perform the request.

44. The method according to claim 43 wherein the at least one input from a customer includes receiving a card in the machine, wherein the output in (f) includes returning the card from the machine.

45. The method according to claim 43 wherein the automated banking machine includes a display screen, wherein the output in (f) includes displaying a message on the display screen.

46. The method according to claim 35 wherein the automated banking machine is operative to attempt performing at least one customer transaction request,

(d) carrying out (a) and (b) prior to attempting to perform consecutive customer transaction requests.

47. The method according to claim 35 wherein the automated banking machine is operative to attempt performing at least one customer transaction request requiring printing on the paper,

(d) carrying out (a) and (b) prior to printing.

5 48. The method according to claim 35 wherein the automated banking machine includes at least one input device operative to receive at least one input from customers using the automated banking machine, and further comprising

(d) receiving at least one input including a customer transaction request requiring operation of the currency dispenser,

10 (e) operating the currency dispenser to dispense currency responsive to the at least one customer transaction request.

49. The method according to claim 48 wherein (d) includes receiving a cash withdrawal request, and causing the paper testing arrangement to test the ability of paper to be moved subsequent to (d) but prior to (e).

15 50. The method according to claim 49 further comprising a printer and a paper take-up roll, and further comprising

(f) operating the printer to print information corresponding to the cash withdrawal request on paper, wherein the second paper moving device comprises a printer drive adapted to move paper relative to the printer,

5 (g) rotating the take-up roll to take up the paper having the information printed thereon, wherein the first paper moving device comprises a take-up roll drive adapted to rotate the take-up roll.

51. The method according to claim 35 wherein the automated banking machine includes a printer and at least one input device operative to receive at least one input from customers using the automated banking machine, and further comprising

10 (d) receiving at least one input including a customer request requiring operation of the printer,

(e) causing the paper testing arrangement to test the ability of paper to be moved subsequent to (d).

15 52. The method according to claim 51 wherein (e) causes the paper to be moved a distance in a first direction, and further comprising

(f) causing the paper to be moved in an opposed direction at least a portion of the distance.

53. The method according to claim 51 further comprising

(f) operating the printer to print on the paper,

wherein (e) includes causing the paper testing arrangement to test the ability of paper to
5 be moved subsequent to (d) but prior to (f).

54. The method according to claim 53 further comprising

(g) operating the automated banking machine to carry out at least a portion of the
request,

wherein (e) includes causing the paper testing arrangement to test the ability of paper to
10 be moved subsequent to (g) but prior to (f).

55. The method according to claim 54 wherein (d) includes receiving a cash withdrawal
request, wherein (g) includes operating the automated banking machine to carry out at
least a portion of the cash withdrawal request.

56. The method according to claim 52 further comprising

15 (g) subsequent to (f), operating the printer to print on the paper.

57. The method according to claim 56 wherein (e) includes causing the paper testing arrangement to test the ability of paper to be moved subsequent to (d) but prior to (g).

58. Computer readable media having computer readable instructions embodied thereon, the computer readable instructions operative to cause at least one computer to carry out the method steps recited in claim 35.

59. Apparatus comprising:

an automated banking machine including an upstream paper moving device, a downstream paper moving device, a currency dispenser, and at least one computer,

wherein the at least one computer is operative to cause the upstream paper moving device to operate to move paper in a first direction and to cause the downstream paper moving device to operate to move the paper in the first direction, and

wherein the at least one computer is operative to generate at least one fault signal responsive to at least one of

the upstream paper moving device operating to move the paper in the first direction and the downstream paper moving device operating but not moving the paper in the first direction, and

the downstream paper moving device operating and moving the paper in the first direction when the upstream paper moving device had not operated.

60. A method comprising:

- (a) operating an upstream paper moving device to move paper in a first direction in an automated banking machine including a currency dispenser;
- (b) operating a downstream paper moving device to move paper in the first direction in the machine in coordinated relation with the operation of the upstream paper moving device;
- (c) generating at least one fault signal responsive to at least one of

the inability of the downstream paper moving device to move the paper in the first direction despite the coordinated operation of the upstream paper moving device to move the paper in the first direction, and

the ability of the downstream paper moving device to move the paper in the first direction despite the coordinated non operation of the upstream paper moving device to move the paper in the first direction.